

Three new *Haemolaelaps* species
(Acarina: Laelaptidae) from birds in the Ethiopian
region, and a redescription of *Haemolaelaps*
mesopicos Radford.*

by

W. M. TILL

Department of Entomology,
South African Institute for Medical Research, Johannesburg.

The new species described in this paper all key out to *Haemolaelaps mesopicos* Radford in the key given by Zumpt and Till (1953) to the Ethiopian species of the genus *Haemolaelaps*. The redescription of *H. mesopicos* is based on a series of mites collected in Natal. Dr. G. Owen Evans and Dr. J. G. Sheals of the British Museum have very kindly given me information regarding the type specimens, which has enabled me to assign the Natal series to Radford's species.

The holotypes and paratypes of the new species are in the collection of the South African Institute for Medical Research, Johannesburg, and paratypes have been presented to the British Museum (Natural History), London.

***Haemolaelaps mesopicos* Radford.**

Radford (1942) based this species on 4 males and 3 females from the Olive Woodpecker, *Mesopicos griseocephalus ruwenzori* Sharpe in Uganda. A series of 3 males, 8 females and 3 nymphs collected by Dr. R. F. Lawrence from *Mesopicos g. griseocephalus* (Boddaert), Pietermaritzburg, Natal, June 1951, is also assigned to this species. A redescription of *H. mesopicos*, based on the material from Natal, is given below.

Female (figs. 1 & 5).

Dorsum: the dorsal plate is roughly ovoid in shape with the posterior margin straight (fig. 1). Length of plate 700-735 μ , greatest width 420-438 μ ,

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length/width 1.60—1.73. The plate bears 36 pairs of hairs, the posterior, terminal pair being long ($200\ \mu$) and sinuous. Of the remaining hairs, those situated on the discal part of the plate are short and fine, while the marginal ones are longer, having a maximum length of 40—45 μ .

Venter: The sternal plate is slightly broader than indicated in Radford's drawing. Median length of plate 96—105 μ , width at level of second pair of setae 158 μ , length/width 0.61—0.67. The sternal setae are subequal in length. The first pair is situated in the anterior concavities of the sternal plate where the chitinization is weaker, and the second and third pairs are situated on the plate. The metasternal setae are placed on the soft skin median to the metasternal plates.

The genital plate may be very slightly widened behind the level of the genital setae, whereas in Radford's drawing it tapers gradually from the level of the setae. Length of plate from level of setae (GL) 114—130 μ , greatest width (GW_1) 96—144 μ , width at level of setae (GW_2) 80—96 μ . $GL/GW_2 = 1.36$ —1.50, $GL/GW_1 = 1.15$ —1.25, $GW_1/GW_2 = 1.1$ —1.3.

The anal plate is relatively shorter and broader than indicated by Radford, length 123—140 μ , greatest width 96—105 μ , length/width is 1.17—1.45. The anal pore is situated in the anterior third of the plate, and the paired anal setae are approximately level with the middle of the pore. The unpaired anal seta is twice as long as the paired ones and is situated near the posterior margin of the plate.

The soft part of the venter is sparsely haired. The genital plate is flanked by three pairs of setae and a pair of long sinuous hairs is present on the posterior margin of the body. The metapodal plates are long and narrow. The peritremes extend to the middle or anterior margin of the first pair of coxae.

The chelicerae and palps show no outstanding features. The pilus dentilis is inflated basally, tapering terminally.

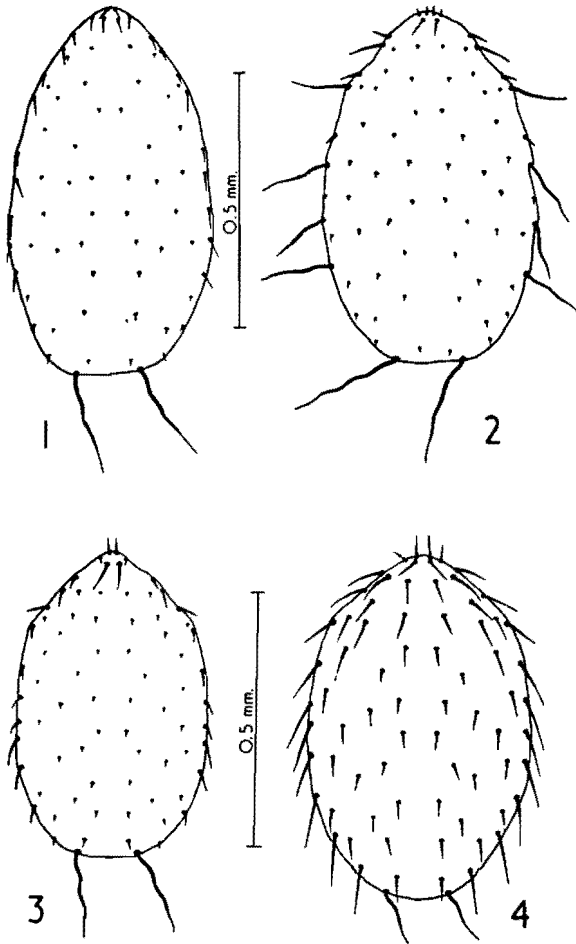
Legs: the measurements of the segments are given in μ in the following table:

No. of leg	Coxa	Trochanter	Femur	Genu	Tibia	Tarsus	Total
I	90	52	74	70	80	120	486
II	60	80	70	70	70	110	460
III	65	70	84	50	54	110	433
IV	65	100	110	74	78	148	575

The chaetotaxy of tarsi II, III and IV is shown in fig. 5. Each of these tarsi bears two stout terminal spines.

Male (fig. 14).

Dorsum: The dorsal plate covers the whole of the dorsum. It is ovoid in shape with a straight posterior margin and bears a pair of long, sinuous, terminal hairs as in the female. The marginal hairs of the dorsal plate are much longer than the corresponding hairs in the female, and have a maximum length of about $170\ \mu$.



Dorsal plate of females of

1. *Haemolaelaps mesopicos* Radford.
2. *Haemolaelaps haydocki* n.sp.
3. *Haemolaelaps steyni* n.sp.
4. *Haemolaelaps wilkini* n.sp.

Venter: The anterior border of the holovenral plate is shaped like the anterior margin of the sternal plate in the female. The plate is similar in shape to that drawn by Radford, but the outline of the posterior part is more irregular. The plate bears 3 pairs of sternal setae, of which the first pair is situated in the anterior concavities as in the female, one pair of metasternal, one pair of genital, 3 pairs of ventral setae, paired anal setae level with the midpoint of the anus, and a longer, unpaired anal seta near the posterior tip of the plate. There is one pair of metapodal plates, each plate being about $40\ \mu$ long and $10\ \mu$ wide. The soft, posterior part of the venter bears 3—4 pairs of setae which vary from 50 — $80\ \mu$ in length, and a number of long ($140\ \mu$) marginal hairs. The peritremes extend to the anterior of the first pair of coxae.

Legs: The chaetotaxy of tarsi II, III and IV is indicated in fig. 14. Tarsus II is terminated by one stout, curved spur and not two as described by Radford. Dr. J. G. Sheals (British Museum), who has compared the drawings of the tarsi of the Natal specimens with type material of *H. mesopicos*, states that he is unable to find any differences and that Radford may have been misled by the fact that tarsus II of the type specimen is slightly distorted on one side. Femur I bears a group of 3 stout spines and femur II a short, truncated spur, as stated by Radford. Otherwise the legs have no outstanding features.

Haemolaelaps haydocki n. sp.

This species differs from *H. mesopicos* Radford in having 4 pairs of long hairs on the lateral margin of the dorsal plate in addition to the pair of long, sinuous, posterior ones.

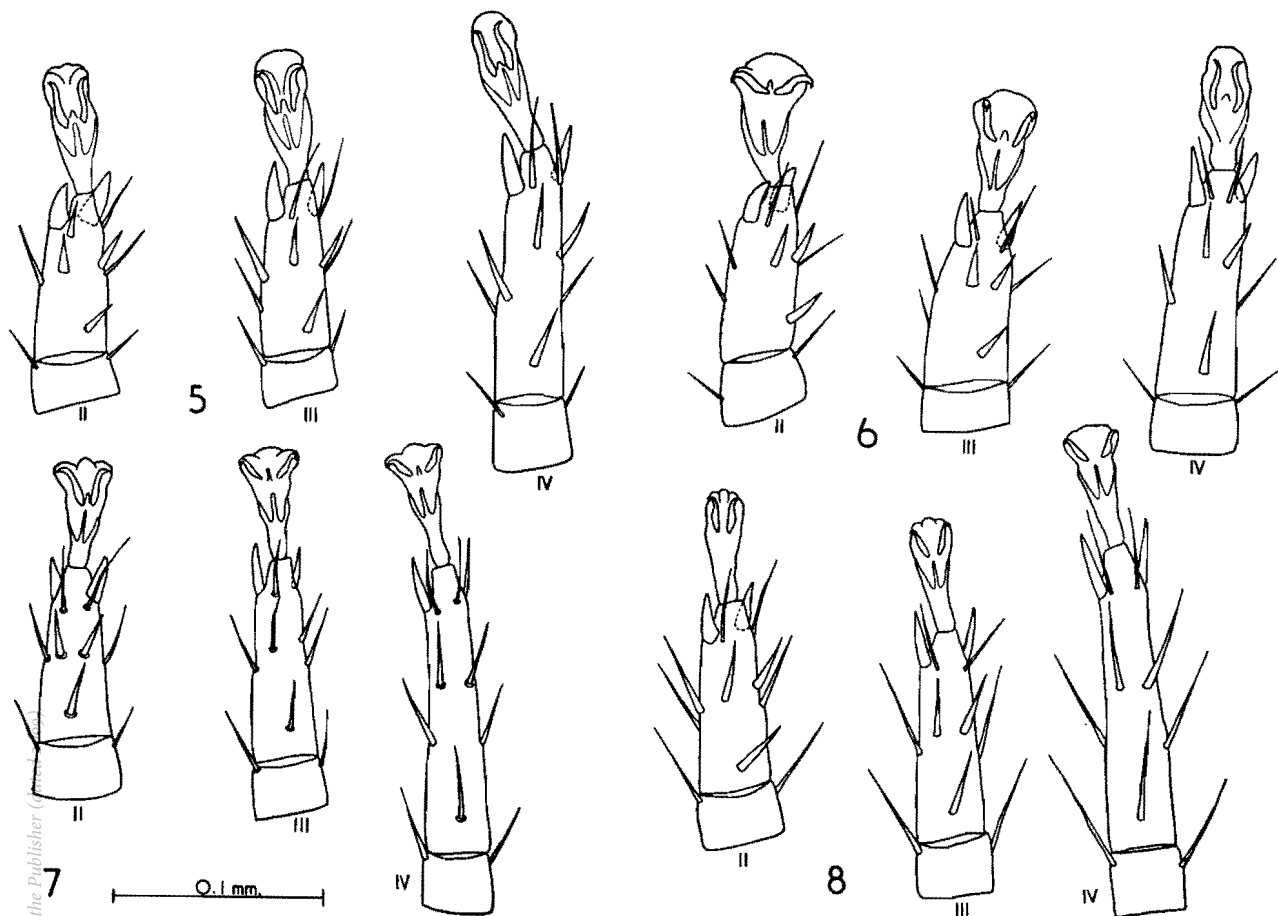
Female: (figs. 2, 6, & 9). Length of idiosoma $726\ \mu$ in holotype, 710 — $753\ \mu$ in paratypes.

Dorsum: The dorsal plate is ovoid in shape with a straight posterior margin; median length $690\ \mu$ in holotype (700 — $735\ \mu$ in 9 paratypes)*; greatest width $438\ \mu$ (438 — $464\ \mu$); length/width is 1.56 — 1.66 . The plate bears 38 pairs of setae of which the medially situated ones are short and fine, the marginal ones being variable in length. Of the latter, the posterior pair and 3 lateral pairs are long and sinuous and a fourth lateral pair consists of long, but non-sinuous, hairs.

Venter: The sternal plate is similar to that of *H. mesopicos*. Median length $96\ \mu$ (90 — $110\ \mu$), width at level of the second pair of setae $158\ \mu$ (149 — $166\ \mu$); length/width is 0.58 — 0.70 .

The genital plate is slightly widened behind the genital setae. Length of plate from level of setae (GL) to posterior tip $130\ \mu$ (130 — $140\ \mu$), greatest

* In all cases the measurements of the holotype are given first, those of the paratypes being given afterwards, in parentheses.



Tarsi II, III and IV of females of
 5. *Haemolaelaps mesopicos* Radford
 6. *Haemolaelaps haydocki* n.sp.
 7. *Haemolaelaps steyni* n.sp.
 8. *Haemolaelaps wilkini* n.sp.

width (GW_1) $105\ \mu$ (105 — $114\ \mu$), width at level of setae (GW_2) $79\ \mu$ (79 — $88\ \mu$). $GL/GW_1 = 1.16$ — 1.33 , $GW_1/GW_2 = 1.3$ — 1.5 , $GL/GW_2 = 1.60$ — 1.88 .

The anal plate is pear-shaped, with a median length of $149\ \mu$ (140 — $158\ \mu$) and greatest width $105\ \mu$ (105 — $118\ \mu$); length/width is 1.23 — 1.42 . The paired anal setae are situated on a level between the middle and posterior end of the anus. The posterior anal seta is less than twice as long as the paired ones.

The soft part of the venter and the peritremes are the same as in *H. mesopicos*. The metapodal plates are long and curved. The palps have no outstanding features. The structure of the chelicerae is indicated in fig. 9.

Legs: The measurements of the segments are given in μ in the following table:

No. of leg	Coxa	Trochanter	Femur	Genu	Tibia	Tarsus	Total
I	84	44	86	70	76	104	464
II	50	70	76	73	64	100	433
III	40	60	76	56	54	107	393
IV	50	90	90	70	70	130	500

The femora of legs I and II bear a pair of long, dorsal hairs in addition to the smaller setae. Each of tarsi II, III and IV terminates in a pair of stout spines (fig. 6).

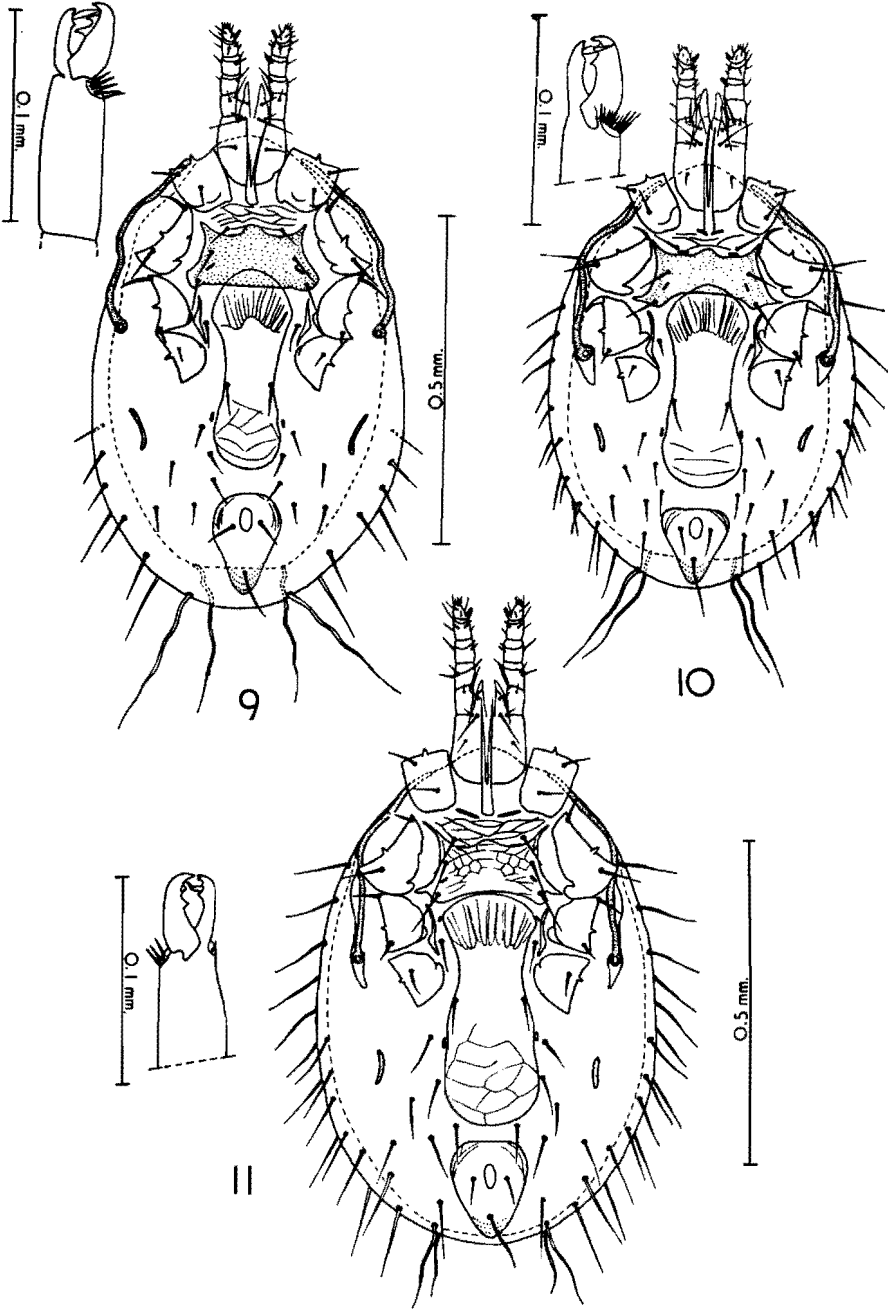
Male (figs. 12 & 15).

Dorsum almost completely covered by a plate which has a median length of 613 — $648\ \mu$ and greatest width 376 — $403\ \mu$. The plate bears long lateral and posterior hairs as in the female.

Venter: The holoventral plate is similar in shape to that of *H. mesopicos*. The sterno-metasternal region has a "granular" appearance, whereas the portion posterior to the fourth pair of legs has a reticular pattern. One or other of the setae in this region may lie off the margin of the plate. The

EXPLANATIONS OF FIGURES.

9. *Haemolaelaps haydocki* n.sp.
Ventral surface and chelicera of female.
10. *Haemolaelaps steyni* n.sp.
Ventral surface and chelicera of female.
11. *Haemolaelaps wilkini* n.sp.
Ventral surface and chelicera of female.



peritremes and metapodal plates are shaped as in the female. The soft part of the venter bears 13—15 pairs of setae, the posterior pair being long and sinuous as in the female. The laterally placed setae are $1\frac{1}{2}$ times to twice as long as those which flank the ventral plate.

The palps are without outstanding features and the chelicerae have the structure indicated in fig. 12.

Legs: The chaetotaxy of the legs is similar to that of *H. mesopicos*, except for slight differences in the relative lengths of some of the setae (fig. 15).

Material:

Holotype (♀), collected at Luanshya, N. Rhodesia, 30.IX.53, by Major E. Haydock, in whose honour this species is named.

Paratypes: 8 ♂♂ and 37 ♀♀ from the same locality, 30.IX.53 and 15.VIII.53. (Thy nymphs, 11 specimens, are not included in the type series).

Host: The Bearded Woodpecker, *Thripias namaquus* (Lichtenstein).

Additional material has been collected by Major E. Haydock from the same host near the Kafue River, Muliashi Area, N. Rhodesia, 10.VII.55, and by Dr. F. Zumpt (S. A. Institute for Medical Research) from the same host in the following localities:

Debeete, Bechuanaland, 19.XII.55 (3 ♂♂ and 6 ♀♀), and 25.VII.56 (2 ♀♀ and 4 nymphs).

Mabelikwa, N. Transvaal, 15.I.57 (12 ♂♂, 16 ♀♀ and 13 nymphs).

Mapalane, Mozambique, 3.VII.53. (3 ♀♀).

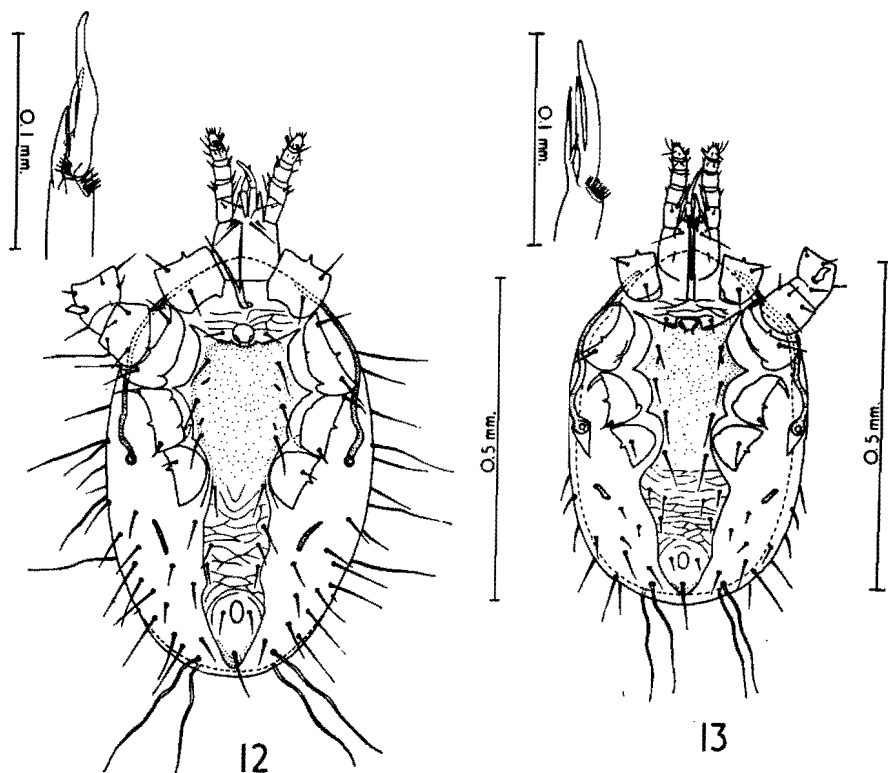
***Haemolaelaps steyni* n. sp.**

Haemolaelaps steyni closely resembles *H. mesopicos*, but differs from it having a stout, spine-like seta on coxa III. There are also differences in the shape and chaetotaxy of the dorsal plate and in the shape of the sternal and anal plates.

Female (figs. 3, 7 & 10). Length of idiosoma 656 μ in holotype, 604—656 μ in 9 paratypes.

Dorsum: The dorsal plate is relatively broader than in *H. mesopicos*, and bears 38 pairs of setae, including the pair of long, sinuous, posterior hairs. The longest setae on the lateral margin of the plate have a length of 54 μ . Median length of plate 630 μ (578—648 μ), greatest width 394 μ (368—420 μ), length/width 1.54—1.61.

Venter: The sternal plate is relatively shorter than in *H. mesopicos* and has a concave posterior margin. Median length of plate 70 μ (53—79 μ), width at level of second pair of setae 158 μ (149—166 μ), length/width 0.33—0.47. The sternal and metasternal setae are situated as in *H. mesopicos*.



12. *Haemolaelaps haydocki* n.sp.
Ventral surface and chelicera of male.

13. *Haemolaelaps steyni* n.sp.
Ventral surface and chelicera of male.

The genital plate is slightly widened behind the genital setae. Length of plate from level of setae (GL) $140\ \mu$ ($130\text{--}158\ \mu$), greatest width (CW_1) $123\ \mu$ ($105\text{--}130\ \mu$), width at level of setae (GW_2) $96\ \mu$ ($88\text{--}105\ \mu$); $GL/GW_1 = 1.07\text{--}1.33$; $GL/GW_2 = 1.37\text{--}1.71$; $GW_1/GW_2 = 1.17\text{--}1.43$.

The anal plate is triangular with a straight anterior margin. Median length of plate $105\ \mu$ ($96\text{--}105\ \mu$), greatest width $105\ \mu$ ($105\text{--}114\ \mu$), length/width $0.85\text{--}1.0$. The posterior, unpaired anal seta is more than twice as long as the paired adanal setae.

The soft part of the venter, metapodal plates, peritremes, gnathosome and chelicerae resemble the corresponding structures in *H. mesopicos*.

Legs: The anterior seta on coxa III is modified to form a stout spine. The relative sizes of the setae on the tarsi are slightly different from those in *mesopicos* and only the anterior terminal seta on tarsus IV is thickened and spinelike (fig. 7).

The measurements of the segments of the legs are given in μ in the following table:

No. of leg	Coxa	Trochanter	Femur	Genu	Tibia	Tarsus	Total
I	88	46	80	74	76	104	468
II	60	74	76	76	68	106	460
III	60	64	72	52	58	120	426
IV	60	86	100	72	80	156	554

Male (figs. 13 & 16).

Dorsum: The dorsal plate is similar to that of the female except that the marginal setae are longer, reaching a length of 70μ . Median length of plate $530-534 \mu$, greatest width $315-333 \mu$, length/width $1.60-1.69$.

Venter: The holovenral plate is similar to that of *H. mesopicos*. The metapodal plates, peritremes and coxae are as in the female. The chaetotaxy of the tarsi is shown in fig. 16.

Material

Holotype ($\varnothing$) and paratypes (5 $\sigma\sigma$ and 23 $\varnothing\varnothing$) collected near Mabelikwa, N. Transvaal, 6.I.57, by Dr. F. Zumpt.

Host: The Black-collared Barbet, *Lybius torquatus* (Dumont).

Additional material (2 $\sigma\sigma$, 7 $\varnothing\varnothing$), also assigned to the species *H. steyni*, has been collected by Mr. R. A. Reed from the Crested Barbet, *Trachyphonus vaillanti* Ranzani, near Johannesburg, Transvaal, I.XI.51.

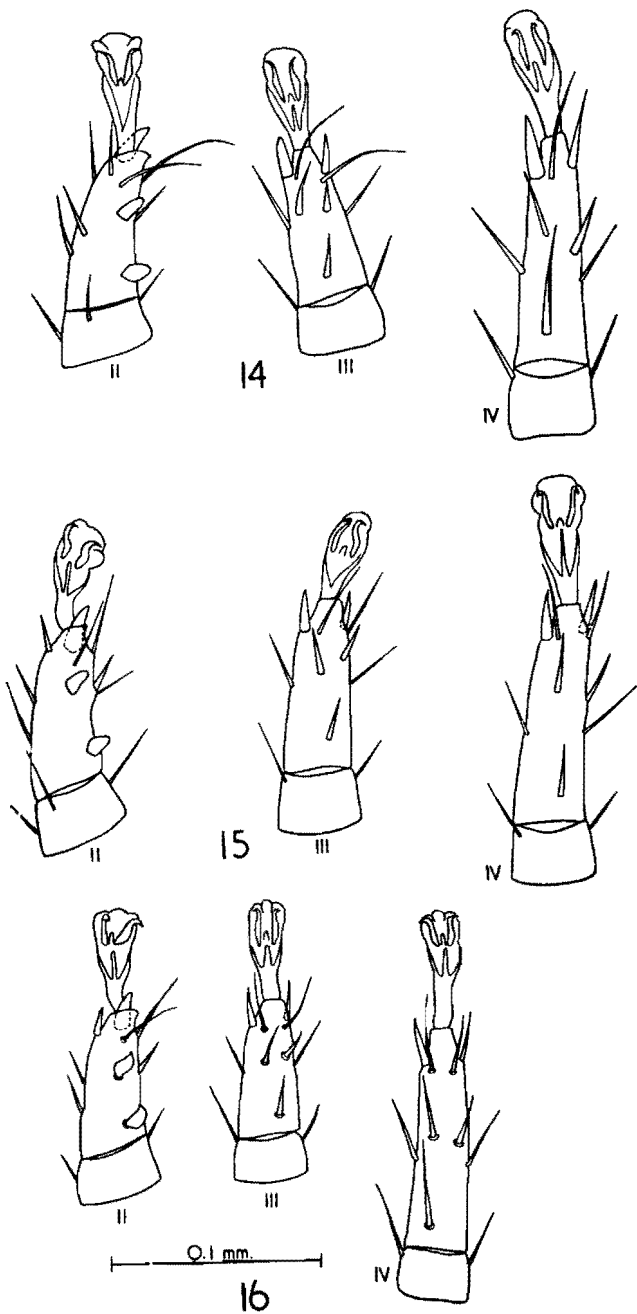
This species is named in honour of Mr. T. J. Steyn Director of Nature Conservation in the Transvaal.

***Haemolaelaps wilkini* n. sp.**

Haemolaelaps wilkini differs from *H. mesopicos*, *H. steyni* and *H. haydocki* chiefly in the chaetotaxy of the dorsal plate. It also has a reticular pattern on the sternal plate, whereas in the other three species the sternal plate has a "granular" appearance.

EXPLANATIONS OF FIGURES

- Tarsi II, III and IV of males of
 14. *Haemolaelaps mesopicos* Radford.
 15. *Haemolaelaps haydocki* n.sp.
 16. *Haemolaelaps steyni* n.sp.



Female (figs. 4, 8 & 11).

Dorsum: The dorsal plate is broadly oval in shape and completely covers the dorsum in non-distended females. Median length of plate $779\ \mu$ (709 — $770\ \mu$), greatest width $499\ \mu$ (455 — $499\ \mu$), length/width 1.48 — 1.58 . Thirty-seven pairs of setae can be distinguished on the dorsal plate. The median setae are longer than those in *H. mesopicos*, *H. steyni* and *H. haydocki*, but are shorter and thinner than the marginal ones. The two posterior terminal setae are sinuous, but are not much longer than the other marginal setae; their average length is about $115\ \mu$.

Venter: The sternal plate has a reticular pattern and is similar in shape to that of *H. mesopicos*, but is relatively shorter and broader. Its median length is $79\ \mu$ (70 — $79\ \mu$), and its width at the level of the second pair of setae is $149\ \mu$ (145 — $158\ \mu$); length/width 0.45 — 0.53 .

The genital plate is long, extending almost to the anterior border of the anal plate. Its median length from the level of the genital setae (GL) is $200\ \mu$ (175 — $200\ \mu$), its width at the level of the setae (GW_2) is $114\ \mu$ (96 — $114\ \mu$) and its greatest width (GW_1) is $149\ \mu$ (123 — $149\ \mu$). $GL/GW_1 = 1.34$ — 1.46 ; $GL/GW_2 = 1.54$ — 1.83 ; $GW_1/GW_2 = 1.10$ — 1.31 .

The anal plate is pear-shaped, with an almost straight anterior border. Its median length is $149\ \mu$ (123 — $140\ \mu$), its greatest width $123\ \mu$ (114 — $127\ \mu$); length/width 1.08 — 1.23 .

The outer metapodal plates are relatively long and slender, but vary slightly in shape from specimen to specimen.

The peritremes reach the middle of the first pair of coxae. The chaetotaxy of the soft part of the venter and the structure of the gnathosome and of one chelicera are shown in fig. 11.

Legs: The legs have no outstanding features. Each of tarsi, II, III and IV terminates in a pair of stout spines (fig. 8). The measurements of the leg segments are given in μ in the following table.

No. of leg	Coxa	Trochanter	Femur	Genu	Tibia	Tarsus	Total
I	100	52	93	90	90	136	561
II	60	80	80	80	76	116	492
III	60	80	84	60	66	126	476
IV	60	120	110	82	90	174	636

Material:

Holotype (♀) and 10 female paratypes, collected near Debeete, Bechuana-land Protectorate, 15.VII.56, by Dr. F. Zumpt.

Host: The Ant-eating Chat, *Myrmecocichla formicivora* (Vieillot).

The species is named in honour of Dr. B. O. Wilkin of the Medical Department, Bechuanaland Protectorate.

REFERENCES.

RADFORD, C. D. (1942). New ectoparasitic mites (Acarina) from Uganda. — *Parasitology* 34: 185.

ZUMPT, F. and TILL, W. (1953). The genera *Turkiella* nov. (= *Androlaelaps* auct.) and *Haemolaelaps* in the Ethiopian region, with keys and descriptions of three new species (Acarina: Laelaptidae). — *Ann. Inst. Med. trop. Lisboa* 10: 215.